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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,069	03/30/2004	Masami Niimi	119322	1306

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EXAMINER	
NGUYEN, TRAN N	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/812,069	NIIMI ET AL.	
	Examiner	Art Unit	
	Tran N. Nguyen	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *15 and 16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-6 and 8-14* is/are rejected.

7)☐ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Applicant's Election with traverse

The fields of search for a method of making a device and for a structure of the device, i.e., the product, are not coextensive, and determinations of patentability for claims of a method of making a device and claims of the device's structure are different.

In the determinations of patentability for claims of a method of making a device, the fabrication process includes its sequential order of fabricating steps and/or tools used in these steps of forming the device are considered significant.

On the contrary, in the determinations of patentability for claims of the device's structure the limitations of device's elements and their structural relationships as well as their functional/operational relationships are considered significant. In other words, in the device claimed invention, or in a product-by-process feature of a device, the method of forming the device is not germane to the issue of patentability of the device itself. *(In re Thorpe, 227 USPQ 964, 966.)*

Therefore, The fields of search for a method of making a device and for a structure of the device, i.e., the product, are not coextensive and the consideration for patentabilities are different and independent. This is the reason why there are two different and separate classifications for the method of forming the lamination core and the lamination core structure.

Thus, the restriction, which is set forth in the previous Office Action, is deemed to be proper and hereby made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. **Claims 3-5** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3-5, the claimed language reciting about the arrangement of the material sheets in a base sheet so that the projections of a first material sheet are substantially intermeshed, i.e., the projections and the recess mate, with the projections of a second material sheet. ***The recitation is considered a method step of fabricating the material sheets from a base sheet rather than the claimed structure of the rotor core with features defined by the material sheets.***

As for the structure claimed of the rotor core itself, the rotor core's structure comprises the helically wound material sheet with a plurality of teeth, and a plurality of projections and recesses therebetween and any specific structural features of these elements of the core are. These structural limitations are given patentability consideration.

However, the claimed arrangement of the material sheets in a base sheet so that the material sheets can be formed is considered to be a fabricating process of the material sheets not the rotor core final product.

In other words, the helically wound rotor core's material sheets with details of the material sheet's features such as core teeth, projections, recesses and details of these structural elements

define the structural configuration of the rotor core. Therefore, they are given patentable weight during the prosecution of patentability determination.

On the other hand, the arrangement of the material sheets in the base sheet does not directly contribute to the structure of the final product, i.e., the rotor core. The recited first and second material sheets are formed from a single base sheet, wherein the first and second sheets' projections and recesses are intermeshed so that the two material sheets are cut from out from the single base sheet. This is a fabricating process step, not the structural feature of the final-product rotor core.

As for the final product of a helically wound rotor core, how the material sheets are arranged in the base sheet is not relevant. In structural claimed rotor core, whether the material sheets being individually arranged and formed in each base sheet or two material sheets being arranged in each base sheet with intermeshed projection/recess or even intermeshed core teeth and core slots either ways would not change the features of the material sheets having rotor core teeth, projections, recesses and any detail of these features or any structural features of the rotor core.

Hence recitation of claims 3-5 are considered as process of fabricating the material sheets from a base sheet and is not germane to the issue of patentability of the device, i.e., the rotor core itself.

A "product by process" claim is directed to the product per se, no matter how actually made, *In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmimn, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964,* all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

Furthermore, two material sheets are arranged with intermeshed features, e.g., projections such as teeth and recess such as slots of a wound core are well known in the art, see US 4102040 or JP-2000-78801 or JP-2001-359246 or JP-55-049955 as refs support evidence.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-2** are rejected under 35 U.S.C. 102(b) as being fully anticipated by **Itamoto et al (JP-55-49955).**

Itamoto discloses a rotor (figs 1-10) for a rotary electric machine, a rotor core constructed of a helically wound material comprising: sheet (1), wherein the material sheet is in a form of substantially belt and has a plurality of teeth (2a) extending from a first side of its middle portion and a plurality of projections projecting from in a direction opposite to a second side of the middle portion the teeth, the projections define recesses (1a) therebetween (figs 2-3),each projection and each recess have substantially the same dimension with respect to a centerline between a first line passing through tops of the projections and a second line passing through bottoms of the recesses, i.e., the projections and the recesses are respectively uniform and having the same dimension and the material sheet is helically wound such that the projections are located at an inner diameter side of the rotor core, wherein the teeth have one of substantially rectangular shape.

3. **Claims 1-2 and 13** are rejected under 35 U.S.C. 102(b) as being fully anticipated by **Tanaka et al (US4,894,905).**

Tanaka discloses a rotor (figs 1-4) for a rotary electric machine, a rotor core constructed of a helically wound material comprising:

sheet (10), wherein the material sheet is in a form of substantially belt and has a plurality of teeth, defined by core slot (notch 11) extending from a first side of its middle portion and a plurality of projections projecting from in a direction opposite to a second side of the middle portion the teeth, the projections define recesses (12) therebetween (figs 1, 3-4),

each projection and each recess have substantially the same dimension with respect to a centerline between a first line passing through tops of the projections and a second line passing through bottoms of the recesses, i.e., the projections and the recesses are respectively uniform and having the same dimension and the material sheet is helically wound such that the projections are located at an inner diameter side of the rotor core, wherein

the teeth have one of substantially trapezoidal shape, and there is a gap (12b) between the adjacent projections in a circumferential direction of the rotor core.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 6, 8, 12, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Itamoto or Tanaka** individually, as applied in the rejection against the base claim(s), and in view of **Shiga (US 5508577).**

Itamoto or Tanaka each individually discloses the claimed invention, except for the limitations of the listed claims.

Shiga, however, teaches a rotor used in a permanent magnet rotary electric machine having conductors (530) mounted in slots between the rotor teeth (figs 1-4), wherein

the conductors have substantially U-shapes and are mounted such that the rotor core is sandwiched in an axial direction (fig 4);

each of the teeth has nails (525) projecting from its end in a substantially V-shape, each of the nails have a dimension such that a distance between the nail of a first tooth and the nail of an adjacent second tooth in a circumferential direction of the rotor core is smaller than a width of the conductor mounted in the slot between the first tooth and the second tooth in a condition that the nails are bent toward the circumferential direction.

Shiga teaches that such features of the rotor would reduce mechanical and thermal loads applied thereto and well as enhancing the securing of the conductors within the rotor slots, via the nails (525) without using any slot closer/wedge.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by embodying the rotor with the features taught by Shiga. Doing so would provide a rotor that has reduced mechanical and thermal loads.

Regarding the arc shape at the top of the projection, as in claim 6, those skilled in the art would realize that the tops of the projections cooperatively form the aperture for holding the shaft; therefore, configuring the tops of the projections in according to the shape of the outer circumferential shape of the shaft is a matter of obvious engineering design in order to ensure a proper and/or snuggly fit for the shaft within the hole defined by the projection's top portions. Just for illustrating argument, if the shaft's outer circumferential surface were oval or square, an artisan would have the necessary mechanical skills to configure the projections' top surface accordingly so that the shaft would be properly fit into the shaft hole defined by the projections.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by configuring the projections of the material sheet forms arcs at the

tops, the arcs having curvature substantially corresponding to a curvature of an outer circumference of the rotor shaft, as in the claimed invention. Doing so would ensure the proper fit of the shaft within the hole defined by the top portions of the projections. Furthermore, it would have been obvious to an artisan with necessary mechanical skills to determined the shape of the projections' top portions in according to the shape of the outer circumferential surface of the shaft because a change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose,* 105 USPQ 237 (CCPA 1955) (emphasis added).

5. **Claims 9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Itamoto or Tanaka** individually, as applied in the rejection against the base claim(s), and in view of **Kern et al (US 5831366).**

Itamoto or Tanaka each individually discloses the claimed invention, except for the limitations of the rotor core having an engaging means provided on the rotor core, wherein the engaging means is disposed to restrict separation of sheet segments of the helically wound material sheet, and the engaging means is integrally formed within the projections of the material sheet.

Kern, however, teaches these features for the purpose of providing means to secure the material sheets together without using additional separate fastening means.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by configuring the engaging means, as taught by Kern. Doing so would provide integral mechanical fastening means to secure the material sheets in the rotor core while not increasing part counts.

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tran N. Nguyen
Primary Examiner
Art Unit 2834